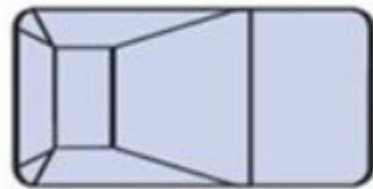


# Standard Rectangle In-ground Pool Volume Calculator



Rectangle

12' x 24'

14' x 28'

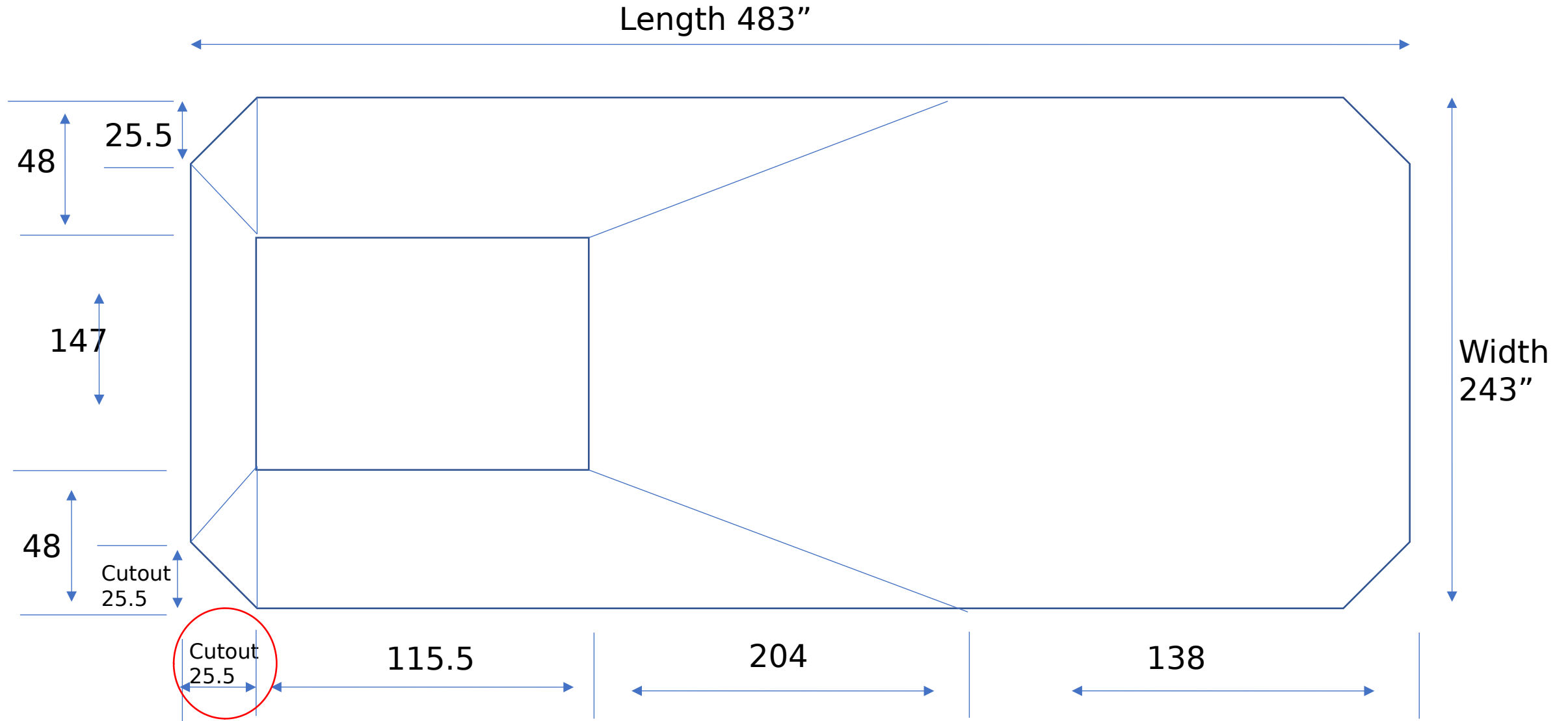
16' x 32'

18' x 36'

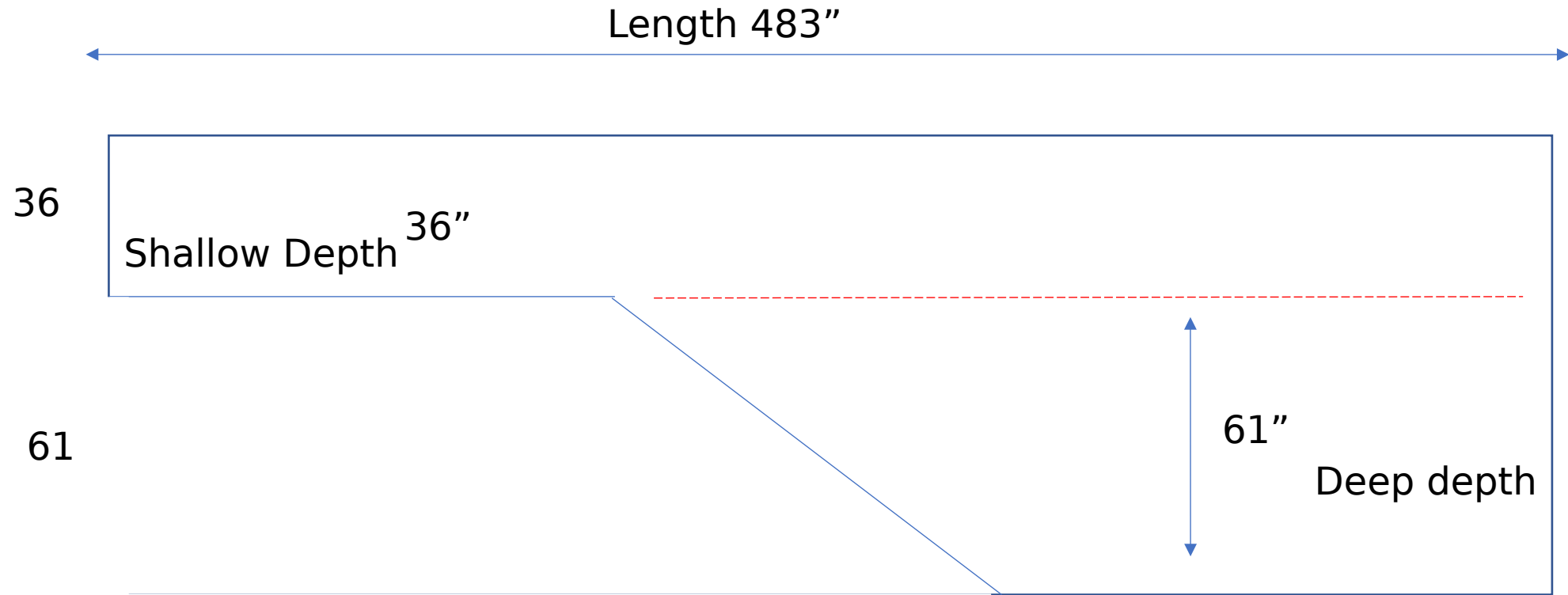
20' x 40'

Nota Bene: This was constructed for 45 degree corners. If you have 90 degree corners, you can still use this, but look for instructions on how to use within the document.

# Plan View Dimensions in inches



# Side View Dimensions



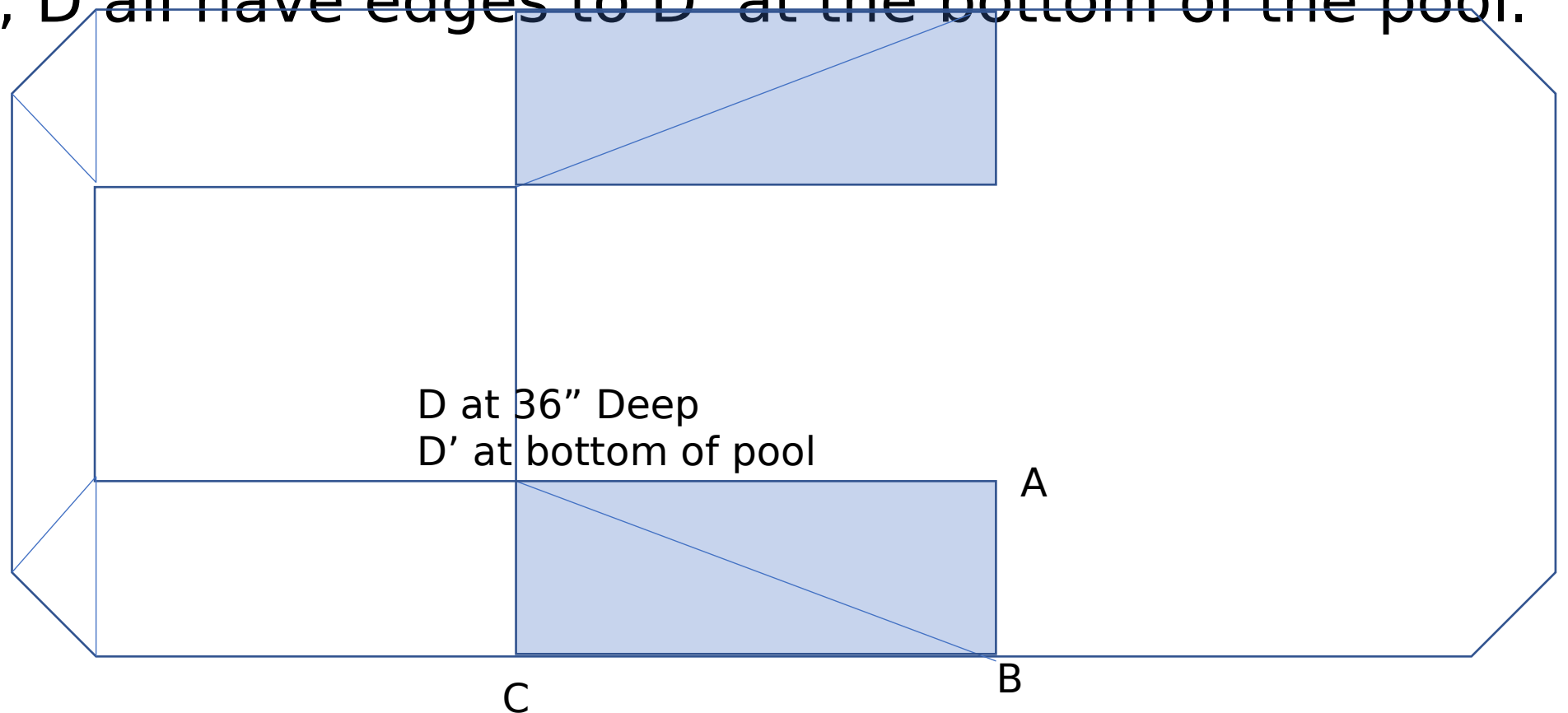
# First Slice – Top shallow depth of the pool

- First line is Total Volume of the 36", for 483" x 243" dimension of the pool.
- If you do not have 45 cutouts on corners, Just delete the contents of the cell containing the 203. Put the dimension of "cutout" in the red circle on Plan view into width for 4 corners.
- If you have 45s, enter the to cutout lengths. In example it is 25.5"
  - This removes all 4 corners by using 2 x 1 column volume.

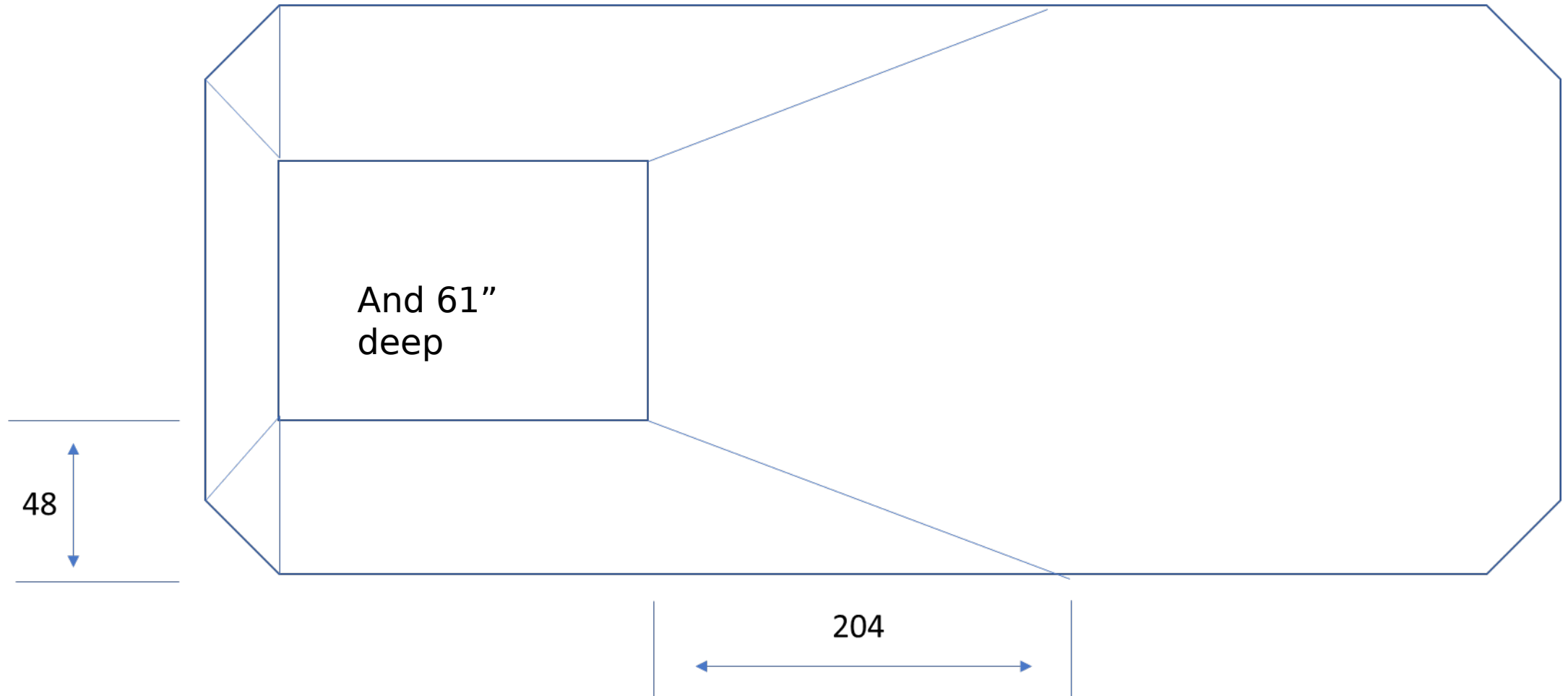
		Length	Width	Depth		
		Inches	Inches	Inches	Cubic Inches	Gallons
First Slice	Top Volume	483	243	36	4,225,284	18,291
	4 corners	25.5	25.5	36	(46,818)	(203)

# Second Slice: Sides of the slope

- Reference. A-D, D' are the vertices of the oblique pyramid.
- A, B, C, D all have edges to D' at the bottom of the pool.

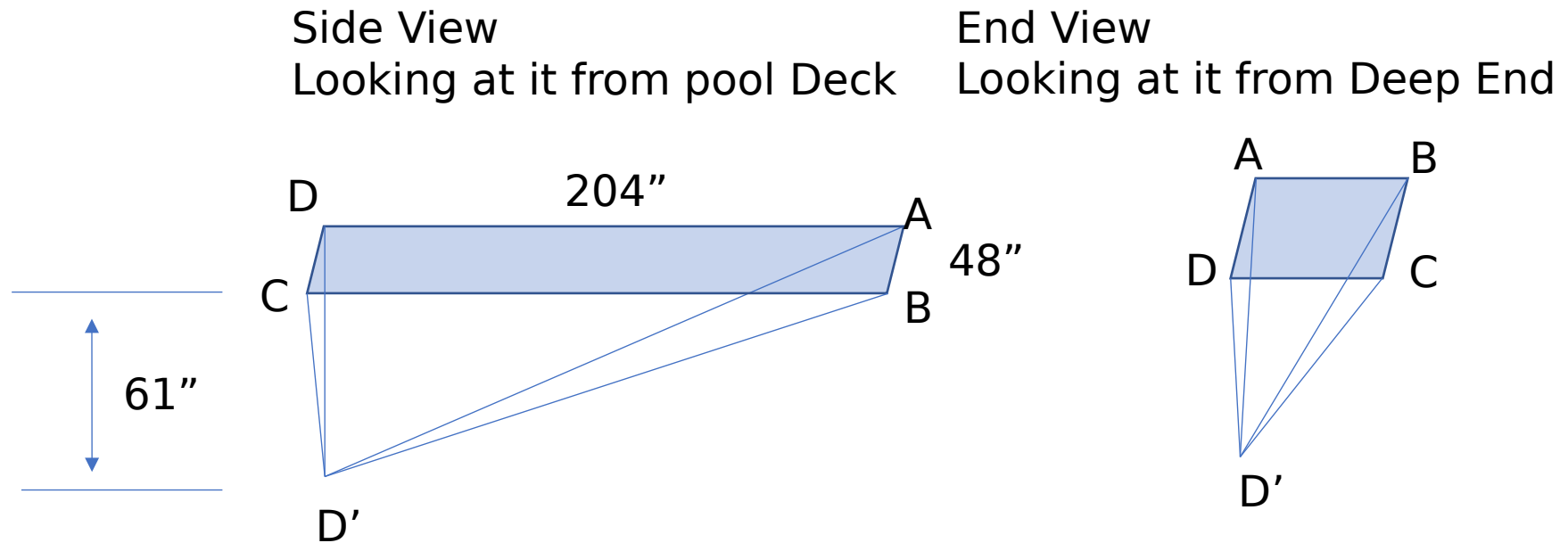


# Dimensions needed



# Visualizing the oblique pyramid

- Oblique pyramid volume =  $\frac{1}{3} \times (\text{base}) \times H$ , we have 2 so multiply by 2!
- =  $\frac{1}{3} \times (204 \times 48) \times 61 \times 2 = 398,208$  Cubic Inches or 1,724 Gallons



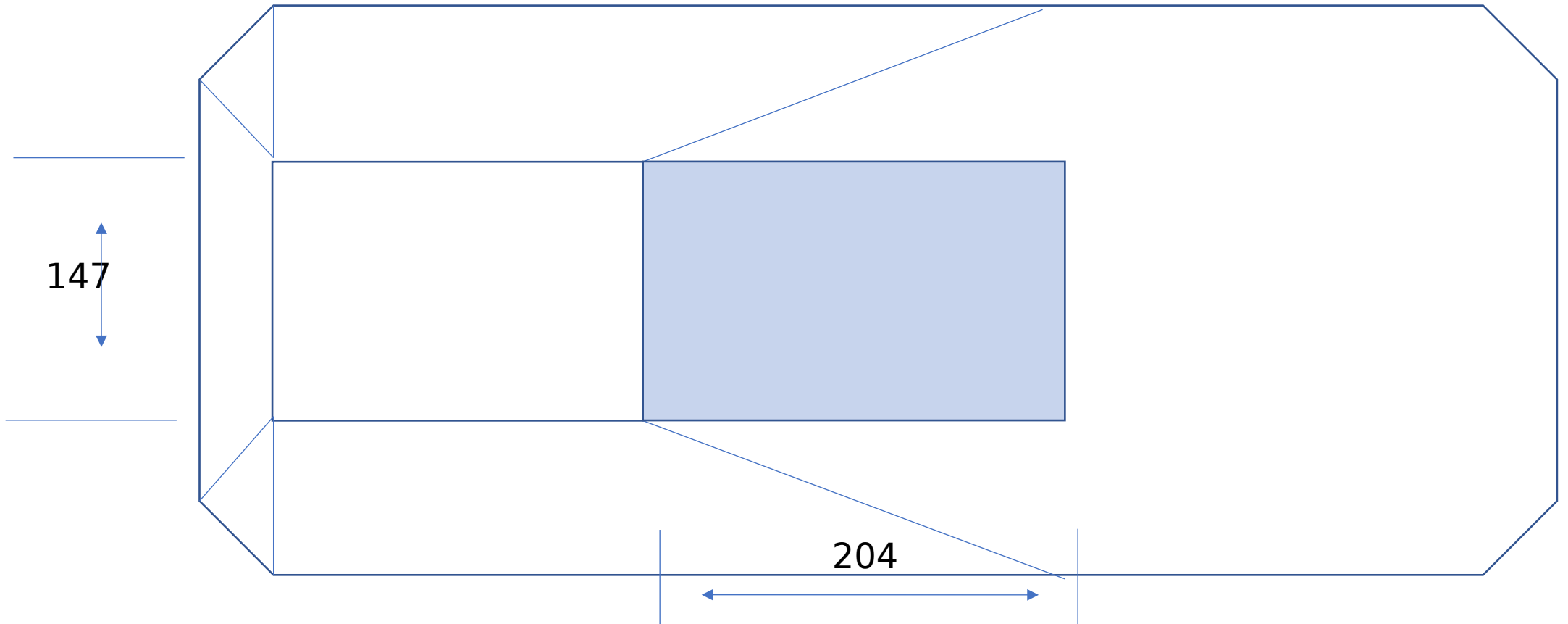
## Updated Totals

		Length Inches	Width Inches	Depth Inches	Cubic Inches	Gallons
First Slice	Top Volume	483	243	36	4,225,284	18,291
	4 corners	25.5	25.5	36	(46,818)	(203)
Second Slice	Slope Sides	204	48	61	398,208	1,724

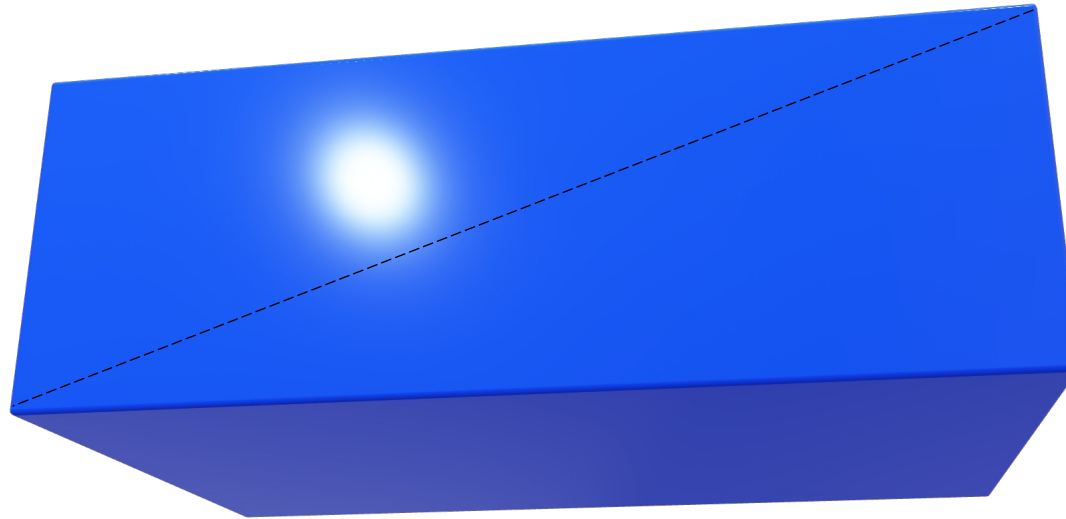


# Third Slice: Ramp

- Gets Easier here:  $\frac{1}{2}$  x volume of the cube.
- $\frac{1}{2} \times 147 \times 204 \times 61 = 1,035,689$  CI or 3,959 Gallons



# Center Ramp Slice Visualization

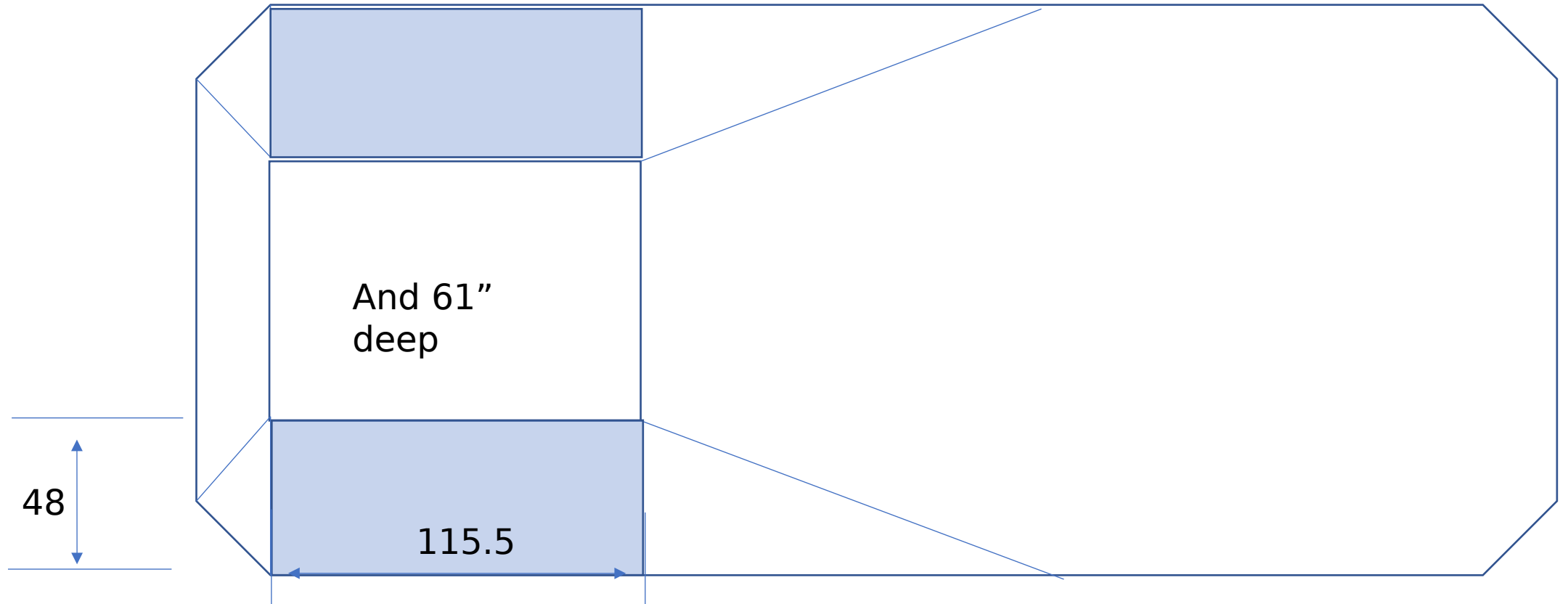


## Updated Totals

		Length	Width	Depth		
		Inches	Inches	Inches	Cubic Inches	Gallons
First Slice	Top Volume	483	243	36	4,225,284	18,291
	4 corners	25.5	25.5	36	(46,818)	(203)
Second Slice	Slope Sides	204	48	61	398,208	1,724
Third Slice	Ramp	147	204	61	914,634	3,959

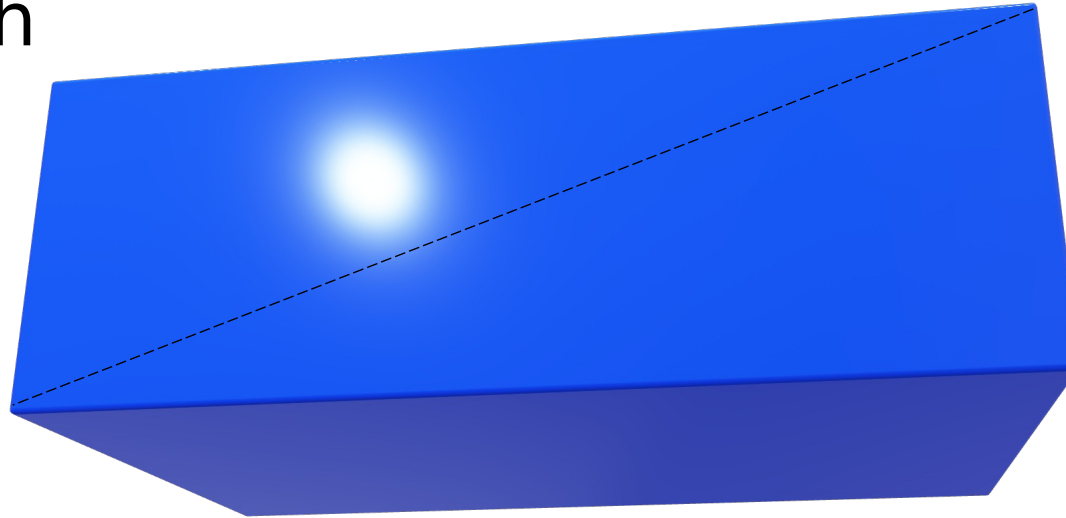
# Fourth Slice: Deep Sides

- Even Easier Easier here: 1 x volume of the cube (each side is  $\frac{1}{2}$ )
- $48 \times 115.5 \times 61 = 338,184$  Cl or 1,464 Gallons



# Deep Sides Visualization

- Two ramps match

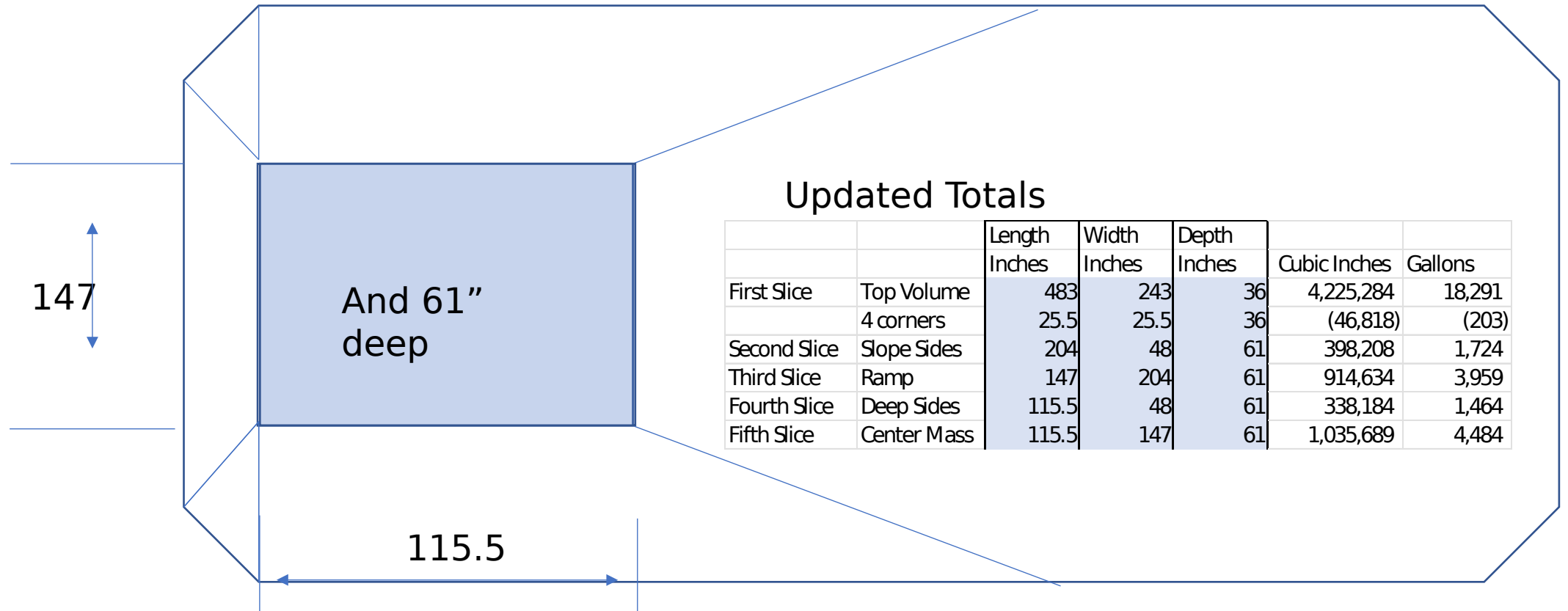


## Updated Totals

		Length Inches	Width Inches	Depth Inches	Cubic Inches	Gallons
First Slice	Top Volume	483	243	36	4,225,284	18,291
	4 corners	25.5	25.5	36	(46,818)	(203)
Second Slice	Slope Sides	204	48	61	398,208	1,724
Third Slice	Ramp	147	204	61	914,634	3,959
Fourth Slice	Deep Sides	115.5	48	61	338,184	1,464

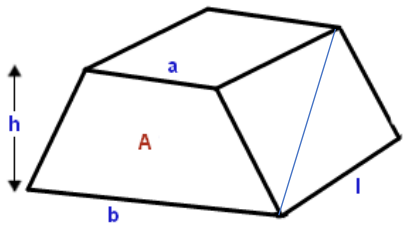
# Fifth Slice: Center Column

- Easiest: volume of the cube
- $115.5 \times 147 \times 61 = 1,035,689 \text{ CI or } 4,484 \text{ Gallons}$

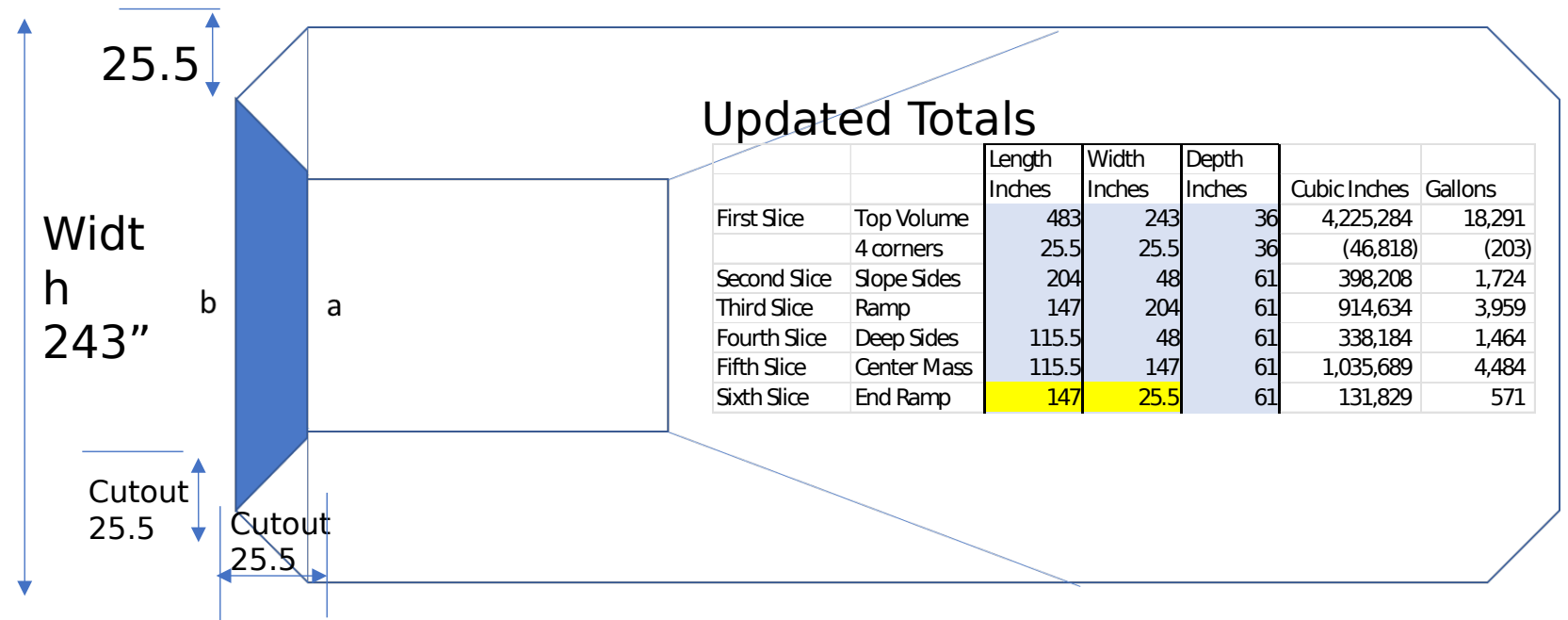


# Sixth Slice: End Ramp – Trapezium Prism

- Trapezium Prism Volume =  $l \times h \times (A + B)/2$  [ $L \times H \times$  average of A & B]
- BUT we have to cut in half so multiply by .5 (see cut line in blue)
- $l = 61$ ,  $h = 25.5$ ,  $A = 147$ ,  $B = 243 - (25.5 + 25.5)$
- $(61 \times 25.5 \times (147 + (243 - 51) / 2)) \times .5 = 131,829$  CI or 571 Gallons
- **NOTE: Spreadsheet will auto calculate, nothing to enter!**



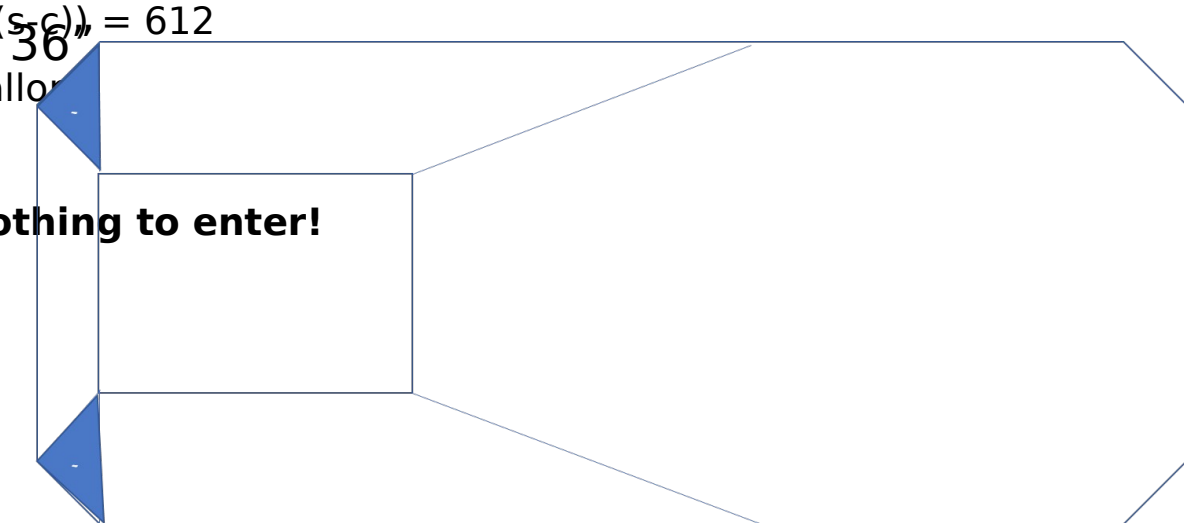
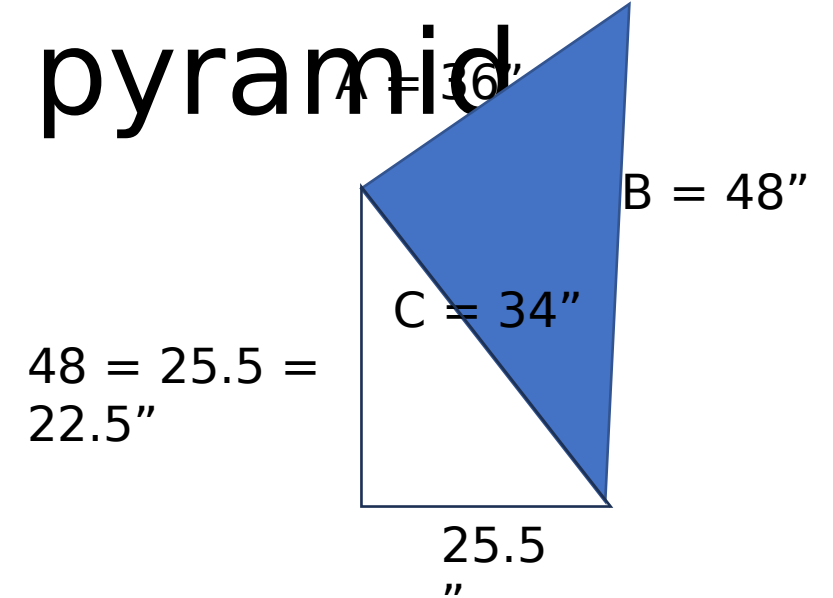
$$A = 147$$



# Corners – We are back to pyramid

- **Volume =  $\frac{1}{3} \times (\text{base}) \times \text{height}$**
- Need the length of the Hypotenuse of pool corners to get A
  - Cut side of pool is  $\text{SQRT}(25.5^2 + 25.5^2) = 36''$
- We have B from measurements = 48''
- To get C using hypotenuse of the white triangle on the right.
  - The corner cut is 25.5. The other side of the triangle is 22.5. So  $\text{SQRT}(25.5^2 + 22.5^2) = 34$
- Then we need Semi-Perimeter (S) since we don't know the height or angles
  - $S = (A + B + C)/2 = (36 + 48 + 34) / 2 = 59$
- Then AREA of the BASE =  $\text{SQRT}(s*(s-a)*(s-b)*(s-c)) = 612$
- $\frac{1}{3} \times 612 \times 61 = 12,444$  Cubic Inches or 54 Gallons
- For two of them, 108 Gallons
- **NOTE: Spreadsheet will auto calculate, nothing to enter!**

BASE looking down...



# Final Total & Comparison

		Length Inches	Width Inches	Depth Inches	Cubic Inches	Gallons
First Slice	Top Volume	483	243	36	4,225,284	18,291
	4 corners	25.5	25.5	36	(46,818)	(203)
Second Slice	Slope Sides	204	48	61	398,208	1,724
Third Slice	Ramp	147	204	61	914,634	3,959
Fourth Slice	Deep Sides	115.5	48	61	338,184	1,464
Fifth Slice	Center Mass	115.5	147	61	1,035,689	4,484
Sixth Slice	End Ramp	147	25.5	61	131,829	571
Seventh Slice	Corners	36	48	61	24,888	108
		34	S	59	TOTAL Volume	30,397.82
			Area	612		